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EXAMINER

THOMAS, SHANE M

ART UNIT PAPER NUMBER

2186

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,031

Applicant(s)

PAGE ET AL.

Examiner

Shane M. Thomas

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 10-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 4 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Prosecution for this case has been assumed by Examiner Shane Thomas.

This Office action is responsive to the response filed 7/21/2006. Claims 11-16 and 18-20 are pending; claim 17 has been canceled. Applicants' arguments have been carefully considered and are persuasive; however, upon a supplementary search, the prior art reference of Page (U.S. Patent No. 6,523,103) has been found and used to reject the pending claims. Accordingly, this action has been made NON-FINAL.

In the response to this Office action, the Examiner respectfully requests that support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line numbers in the specification and/or drawing figure(s). This will assist the Examiner in prosecuting this application.

Excerpts from all prior art references cited in this Office action shall use the shorthand notation of [column # / lines A-B] to denote the location of a specific citation. For example, a citation present on column 2, lines 1-6, of a reference shall herein be denoted as "[2/1-6]."

Response to Arguments

Applicant's arguments, see pages 7-10 of the response with respect to the rejection(s) of claim(s) 1-16 and 18-20 have been fully considered and are persuasive. Therefore, the rejections has been withdrawn. However, upon further consideration, new grounds of rejection are made as discussed herein.

Claim Objections

Claims 1-9, 15, and 19, are objected to because of the following informalities: As per claim 1, the term --updated file-- should be amended to --update file-- in order to remain coherent with the rest of the claim.

As per claim 3, --stat-- should be corrected to --state--.

As per claim 4, --thye-- should be corrected to --the--, --emty-- should be corrected to --empty--, --cach-- should be corrected to --cache--, and --rebotting-- should be corrected to --rebooting--.

As per claim 14, it is noted that claim 14 is not presented in the claim set comprised in the response filed 7/21/2006, thereby leaving the claim's status uncertain. Upon a review of the claim history, it appears previous claim 14 (of response filed 2/10/06) comprised the limitations of present claim 15. Likewise, the subject matter of previous claim 15 is now found in claim 16, and the subject matter of previous claim 16 has been removed from the set of claims. For the purposes of expedited prosecution, the Examiner shall consider missing present claim 14 as comprising the limitations of previous claim 16 (2/10/2006).

As per claim 15, claim numbering is inconsistent as claim 14 is missing.

As per claim 19, --onece-- should be corrected to --once--.

Claims 2 and 5-9 are objected to as being dependent upon an objected to base claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-16 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 11, the claim does not contain a transitional phrase (e.g. “comprising,” “consisting,” or the like) and therefore the scope of the claim is not clear. It is the Applicant’s duty to particularly point out and distinctly claim the subject matter regarded as the invention. Nonetheless, for the purposes of examination, the Examiner has considered the claim to be open-ended (e.g. the embedded system “comprises” all of the claimed elements).

Further, it is not clear whether the term --the last normal state-- is referring to the previous normal state (e.g. the system has transitioned to a non-normal state) or the system contains multiple “normal states” and the present state is the last of the set of “normal states,” as the term --the last normal state-- lacks antecedent basis. Nonetheless, for the purposes of examination, the Examiner has considered the term --the last normal state-- to the previous normal state before the system was placed in to a “not normal state” (i.e. the change state as discussed in claim 1).

Claims 11-16 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01.

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As per claim 11, the omitted elements are: a second state other than the normal state. Applicant claims in line 2 that an embedded system “assumes one of two states” and goes on to claim only a single state (the “normal state”). As claimed, claim 11 appears incomplete.

Claims 12-16 and 18-20 are rejected as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,3,5,6,8,10-13,15,16, and 18-20, are rejected under 35 U.S.C. 102(e) as being anticipated by Page (U.S. Patent No. 6,523,103).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

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As per claim 1, Page teaches:

(1) starting a write filter that intercepts writes to the protected memory locations (on the primary partition) and stored the writes in a cache (RAM) [7/20-22];

(2) starting a state machine [7/2-6] with at least a change state (either one of PREPBOOT or COMPLETEBOOT states) and a normal state (RUNBOOT) [4/52-64];

(3) upon starting the state machine, entering the change state when an indication (current boot state indicated in AUTORUN.INI - [7/3-4]) is present that data needs to be persisted to the protected memory locations [5/40-42], otherwise entering the normal state [5/13-30];

(4) in the normal state identifying requests for critical writes to the protected memory locations [5/24-26],[7/29-32] and creating a least one update file (e.g. the collection of the update data in the cache RAM 200 that is stored in persistent memory 208) describing the critical writes [7/25-29], wherein the critical writes are not persisted to the protected memory 204 during the normal state (persisted during the COMPLETEBOOT state - [5/56 - 6/11]; and

(5) in the change state (COMPLETEBOOT state), applying the critical writes described in the update file [5/65-67] and rebooting the system in a manner that persists the critical writes to the protected memory locations [8/32-38].

As per claims 3 and 12, Page teaches running applications in the normal state [4/26-28] and not running applications in the change state [5/31-33].

As per claim 5, Page teaches when in the normal state as an update file is created, creating an indication (i.e. storing files in the data partition 208) that data needs to be persisted to the protected memory locations (primary partition 204)) - [4/48-51], [5/24-30], and [7/22-40].

As per claim 6, Page teaches wherein the step of creating an indication comprises writing the file name of the update file (e.g. a tag or other identification - [7/29-32]) to a data file (portion of the data partition 208 that comprises the data to be updated) - [7/25-29]. Further, it is necessarily inherent that the data file of the data partition 208 stores files names of the updates to be written as all data files have an associated file name associated with them so as to be location by the operating system when a write or read is to be made to the data.

As per claim 8, Page teaches running an update executable (e.g. the state machine is an executable as it is comprised on the AUTORUN.EXE file [4/2-6]) in the change state, as the state machine needs to be run in order to transition/advance between/from the normal state (RUNBOOT) and the change state (PREBOOT and COMPLETEBOOT).

As per claim 10, Page teaches:

(1) a processing unit responsive of an operating system for executing applications [7/16-18] to perform functions (processing unit is inherent as it is well known in the art that to execute application, a processing unit is required to read and execute the instructions of which the application is comprised);

(2) a main memory location (portion of primary partition 204 that maintained the OS) storing the operating system (primary OS - figure 2) of the embedded system, where the OS provides a write filter (wrfilter.sys) that protects the OS from writes - figure 2 and [4/10-22];

(3) a secondary memory location (portion of primary partition that does not contain the OS) for storing software (i.e. applications) and data - [4/26-28];

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(4) a control program (state machine - [4/52-64]) that executes automatically upon booting of the system and causing the system to operate in a normal state (RUNBOOT) and a change state (PREBOOT and COMPLETEBOOT);

(5) running applications in the normal state and when a critical write to the OS occurs to the OS, the critical write is stored in an update file (data partition 208) and not persisted to the OS until the system enters the change state - [7/8-36]; and

(6) during operation in the change state, no applications are run [4/26-28] and the update file is used to update and persist the OS - [7/60 - 8/3].

As per claim 11, Page teaches a system (figure 2) comprising a normal state (discussed above) in which applications are executed [7/16-18] and a write filter [4/16-23] that intercepts writes to a protected memory location 204 and redirects them into a non-protected memory location 200 [7/20-22] wherein the writes are not applied during the normal state [7/49-62]. Respective writes to the filter during the last normal state (i.e. the normal state above) are re-applied to the write filter (now disabled) and subsequently persisted to the respective protected memory locations [8/4-31].

As per claim 13, critical writes are applied to the write filter and persisted in the change state - [7/25-36].

As per claim 14, (previous claim 16), Page teaches applying updates to the OS during the change state - [8/24-31].

As per claim 15, critical writes included writes to a system registry - [7/25-28] and [8/26-31].

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As per claim 16, writes intercepted by the filter in the normal state are copied to at least one update file (combination of all files in the data partition 208 - [7/29-35]) and in the change state the update file is used as the source for re-applying the write to the [disabled] write filter - [7/60-62] and [7/43-48].

As per claim 18, the change state is entered subsequent to a boot when indicators (presence of data in the data partition 208 of updates are present) - [7/36-56].

As per claim 19, once all respective writes applied to the write filter during the last normal state have been persisted, the state machines enters the normal state [8/12-38].

As per claim 20, the protected memory location 204 stores an OS of the embedded system (figure 2 show the primary OS is stored in primary partition 204).

Claims 1,3,5,6,8,10-13,15,16, and 18-20, are rejected under 35 U.S.C. 102(a) as being anticipated by Page (U.S. Patent No. 6,523,103).

The same rejections discussed *supra* under §102(e) are applied hereto.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Page (U.S. Patent No. 6,523,103), as applied to claims 1,3,5,6,8,10-13,15,16, and 18-20 above, in view of Ryan (U.S. Patent Application Publication No. 2003/0084194).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

As per claim 2, Page does not specifically teach emptying the cache 200 of the system of figure 2 upon bootup. Ryan teaches zero-initializing a RAM upon boot-up (§4), thereby emptying the invalid contents of the RAM during system initialization. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the write filter system of Page with the emptying by zeroing out method of Ryan in order to have flushed all invalid data from the RAM before system use of the RAM, thereby eliminating the chance that the system will read invalid data from the RAM once being used by the system of Page.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Page (U.S. Patent No. 6,523,103), as applied to claims 1,3,5,6,8,10-13,15,16, and 18-20 above, in view of Xian et al. (U.S. Patent No. 6,327,584).

As per claim 7, Page does not specifically teach naming the update file using a timestamp. Xian teaches creating an update file naming the update file using a time stamp [8/36-50]. It would have been obvious to one of ordinary skill in the art to have combined the write filter system of Page with the file-name-timestamp teaching of Xian with the filtered write because Page has expressly taught the use of writes to update critical portions of the OS [7/25-28] and Xian's timestamp naming provides files having the same filename prefix that can be distinguished (between current and outdated files) in to the most recently updated version via the timestamp extension portion of the filename (Xian Col. 8 Lines 28-35). Such a modification to Page would have been beneficial in distinguishing the most recent update to the OS if subsequent updates for the same data portion of the OS were written to the data partition update file 208.

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Using the timestamp teaching of Xian, modified Page could have applied the most recent update to the OS portion thereby saving time and confusion caused from multiple updates to the same OS portion.

Allowable Subject Matter

Claims 4 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As per claim 4, the prior art of record does not specifically teach or suggest, either alone or in combination the specific steps taken once the writing of the update was considered successful or unsuccessful.

As per claim 9, the prior art of record does not specifically teach or suggest, either alone or in combination placing the state machine in a sleep mode during the execution of the update executable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M Thomas whose telephone number is (571) 272-4188.

The examiner can normally be reached M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M Kim can be reached at (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shane M. Thomas



**PIERRE BAILLE
PRIMARY EXAMINER**

9/25/06